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A HEALTHY BRAIN IS NECESSARY
TO A FREE WILL.

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The essential element in the human mind and what distinguishes each self from every other one, and by which our capacity for independent action exists—is the will. In mere bodily organization there is great uniformity, but this marvelous machinery does not constitute self, that directs and moves the organized frame. No more can the organs of sense through which we gain a knowledge of the materials and forces of nature, constitute our personality; nor does the mass of ideas and conceptions, the intuitive consciousness, the perceptions and logical forms, which are so similar in the common mind, involve the element which makes each human being distinct in himself from humanity at large. The essential fact in human consciousness; that which expresses spontaneity, power and ability for independent action is the volitional or regulative faculty. Without this magnificent principle all of the phenomena of mind would be ranked but as so many links in the chain of cause and effect which are exhibited in the

universal operations of nature. Men would then be mere things—impersonal and irresponsible.

It is the activity, therefore, of this faculty that regulates our mental nature and our independent life. It is, indeed, intuitive; nevertheless, needs to be educated; it must be free in order to govern the lives of men.

The brain is the material basis of the mind, and is subject to all the physiological and pathological laws of other viscera; it has a great range of capacity as an organ; it needs a simple supply of blood for mere nutritive changes, but a much greater and momentary one when supporting mental actions. The vital chemistry must no where have freer play than here. It must rest, too; it becomes fatigued by ordinary and unexciting uses; but inordinately employed for long periods the balance of nutrition becomes disturbed; it wears excessively, its organic tone is lowered, and it loses ability for normal manifestations of mind.

The mind is builded by the gradual formation of ideas, the materials of which are derived through the senses, but are shaped into concepts by an innate faculty. The accumulation and retention of these form the raw materials of our intelligence. These factors, great or small, are stored away in associated forms and constitute our judgments of things more or less compound and complex. They are inseparably connected with our emotions, and moral and religious sentiments which constantly guide us in the discharge of our duties. A man in a controlling position should be able to employ all these resources

calmly and sagaciously. His capacity for sound judgment and self-possession rests upon his intellectual possessions and the due restraint of his affective nature. Now, this due exercise of mind for our self direction depends upon the integrity of that dominant faculty which we call—the will.

Under this autonomy we possess powers for generalization, or abstraction of our conceptual stores; but if this master faculty be in abeyance, which it is, under conditions of functional or organic lesion of its material basis, our self possession is lost, and we become creatures of mere impulse—may I not say mere automata! The fine powers for analysis or synthesis are shattered, and what remains of mind is a mere exhibition of associations of ideas. The treasures of knowledge are still held, but no longer coherent and under discipline; like a ship under sail without a rudder, backing and filling, a mere drift; or an army without an adequate commander to direct its march or its battles.

This supreme mental force is no “transcendental entity” to be considered apart from physical existence, but may be said to be the correlative of the totality of the organic power of the brain. It is, therefore, only a well rested, well nourished and properly exercised brain that can display the freedom of this magnificent endowment of man. Thus it is, that psychology comes under the autonomy of the medical profession. The progress of physiology and pathology have shed immense light on the relations of the brain and the mind. From a remote period the brain has been known as the center of sensation

and motion, but only within a few years have they been definitely located in the cerebral mass; and the specialization of areas in relation to their functions is now so well known, and their coördination for the execution of instinctive and acquired movements, that we can put our fingers on the exact regions where exists our capacity to think—the area where sensations are shaped into concepts—where ideas are symbolized in language—where memory holds its seat, and the imagination displays its marvellous powers. All the apparatus of our organic life—the organs of respiration, digestion, circulation, excretion and the great neuro-muscular systems, are merely to sustain and develop a definite region of the periphery of the brain, which can be covered by two hands. This is the realm of consciousness—the plane where spirit greets matter and the healthy life which enables a man to say “I know that I know; I feel that I feel; I think that I think;” it is where the human consciousness equipoises the cosmos. Gravitation is instantaneous in its action; consciousness just as rapidly reaches from the center to the circumference of the universe. Who but the physician has the right to supervise this dread region? Closer than the minister of religion, or the ties of blood, he stands the guardian of its illimitable faculties.

Through physiological research psychology has been lifted above the misty, subtle reasoning of the schoolmen into the light of a new day, and is now comprehended as never before. Metaphysics is no longer a jugglery with words and phrases, but is a

function of consciousness only existing in a healthy brain; it is the purest and highest expression of reason, and cannot be displayed when the brain is functionally or organically unsound; it is a psychological systemization of ideas under the regulative faculty—the will—whereby the intuitional phenomena of thought, and the phenomena derived through the senses from external objects—the ideal and the real—the subjective and the objective—are brought into accord, and the consciousness is freed from baleful illusions, hallucinations and delusions. The imperfect state of consciousness in unsound sleep wherein ideas flow freely, regulated only by the law of association, represents an abeyance of the metaphysical faculty. We are led everywhere by the most absurd, grotesque, or fearful ideation without self-control, until further aroused and the spell is broken. There is no metaphysics in dreams.

The due development and direction of brain life, appertains to hygiene and sanitation. The manner of living, therefore, is of the first importance in order to obtain a healthy brain structure. This relates to air, clothing, food, exercise, employment and sleep. Whatever impairs any one of the great organs will, sooner or later, involve the health of the brain.

While the mental power of a race, or of an individual may be lowered to almost a brute state by exposure in inclement seasons, with inadequate clothing, poor food and bad air; on the other hand softness and needless indulgence, frivolity and luxury, lead to effeminacy. Children should be the offspring of

healthy parents and be reared on plain substantial food; and, at the same time, the means of abundant and attractive exercise in the open air should be afforded. Instead of sleeping in heated rooms, luxuriously furnished, they should be without fire except in quite cold seasons, and be free from the decorative garniture of our fashionable people; and the hours of sleep should be ample and regular. Physical hardihood will thus be secured and the material basis of a strong mental and moral character be laid down. But the future character of an individual thus endowed with physical health will depend largely on ancestral conditions and the moral, religious and intellectual training which he receives.

We should always make a distinction between *impulse* and *will*. From the invariable manner of accumulation and association of the mass of ideas which constitute intelligence; over and above the immense number of actions that are normally automatic, there are constantly seen those which are the result of mere impulse, therefore involuntary, and not in any strict sense those which are willed or voluntary.

The impulsive and involuntary ones, in the sense I mean, are those which a sound will should be able to restrain. These impulsive actions, morally speaking, are the dangerous ones in our lives; for though they are so often good and commendable; yet they are constantly liable to be wrong. To restrain these and subrogate them completely to the will should be an aim in education.

The will can originate nothing, it can only take of

the ideas which we possess and coördinate and direct them. It is by the will, I repeat, that we analyze and compound our notions, calmly reflect on our mental stores, and make such selection of them, and give such a direction to our thoughts as subserve our purposes in investigation, reasoning, and a final judgment on any given occasion. By our will we direct our way; by our impulses we are led, and too often driven. By early, constant, well directed training, more especially by inculcating habits of strict obedience to authority, whether relating to superiors, to sound precept, and the restraint of emotional impulses, the supremacy of will may be firmly established: and this is made more certain by the fact that the material basis of the mental and moral nature grows to conditions under which it is continually exercised.

The domination of the will is indispensable in concentrated thought: the control of the sensibilities is equally important; for unless feeling, appetite, desire are under government, our character is too unstable for the fulfillment of our responsibilities in society. Reason, reflection and judgment are all frequently overcome by the suggestions of appetite and passion; unless a strong rein is held by the will over the affective faculties.

There are mild and apparently innocent mental indulgences which exert, nevertheless, bad influences upon character. I refer to reverie—day dreaming—a species of mental intoxication, in which the mind is abandoned to drifting under the influence of mere association of ideas. There is no will in exercise; the

imagination governs thought, and this sort of sublimated egotism, gives so much pleasurable cerebral excitement that, unless resisted, establishes at length a species of mental constitution akin to insanity. Every physician meets with cases where this pernicious mental habit involves, more or less, the reasonable actions in the individual. Habitual indulgence in mild reverie has a tendency to dementia; "day-dreaming" (castle building) attended with excitement as it often is, especially when related to great expectations, tends to a "delirium of greatness."

More attention should be given to this subject. It is to be hoped that physicians will study carefully its evil tendencies. Teachers, too, must awake to a consideration of its deleterious effects upon a pupil's mind. It is bad enough to be subject to this dream life when we are in unsound sleep; but every one should be warned, when awake, to keep the will, and not the imagination, at the helm for the voyage of the day.

To "keep cool" under exciting circumstances, to keep silence under great provocation, form great factors in magnanimous men; all of which depend so much upon the culture of the will.

More important still, is the use of the will, and not the memory, merely, in the exercises of schools and colleges. It is undeniable that the method of teaching in American schools has been grounded too largely on exertions of the memory in acquiring tasks. Lessons have been memorized, and not acquired by effort of the understanding; hence, they are not well retained and furnish a poor basis for

wide intellectual culture. A lesson cannot be understood by an act of the memory. Severe efforts at memorizing in order to make a good recitation (cramming) fatigue the brain and lower the power of the intellectual faculties. It is not a process of ideation. The most eminent authorities in psychology agree that all sensations contributing to ideation must be symbolized or objectified *by the mind itself* in order to be comprehended; that we cannot think in determinate forms without the formation of mental images (the representative faculty) to *guide* our thoughts; and without these no concept can be formed, no reasoning is possible. Herein lies the true line of demarcation between a memorized and an understood lesson; the former is gained by mere repetition of words and phrases and does not make a lasting impression; the latter is an analysis by the will; the intellect frames its own concepts in regard to it, and it remains; it is understood, not in the phraseology of the text book, but as a real part of the mind's work. The master who knows thus how to draw out the powers of the mind in the acquisition of knowledge is the great teacher, and is always gratefully remembered; for he has revealed to his pupil that his life's success depends upon persistence in plans that are well conceived, and purpose in all his aims.

This process of culture by the will gives largeness and stability to the intellect; all the subsidiary faculties concur to aid the great aims of the will. The *memoriter* method, on the contrary, weakens the will and, I repeat, lowers the powers of the mind.

Nothing seems to be so much neglected as the higher culture of the will in the minds of youth.

The notion that to develop a strong, healthy mental life by daily exercise in purposive thinking is not a new one in medicine. The famous Dr. Rush gave lectures, in 1802, to college classes at Princeton on physiology, and he insisted that a student should exercise his mind every day in close thought in order to give expansion and stability to its capacity: that as muscular organs are developed by activity, the brain follows the same law, and may be increased up to full limits as the material basis of the higher forms of mental activity.

What is likely to damage the brain so that the will becomes impaired, if not lost?

I have mentioned the affective faculties, the basis of which are the feelings of pleasure and pain, that accompany and play upon purely intellectual actions and which regulate greatly their scope. It is the inordinate exercise of sensibility that is especially destructive of voluntary function. Success exalts good feeling which, if unrestrained, goes on to ecstasy; while disappointment, if unrestrained, tends to melancholia; thus the exciting and depressing passions unduly developed reduce the powers of the brain by wear and tear more especially in regard to the exercise of will; and the individual becomes exposed to the dominion of his passions. To grasp, to conquer, to excel, to accumulate, to control, to "corner," to envy, to hate, to revenge, to lust, to destroy; any or all of the terrible elements of evil that dwell in the soul may arise and govern the life of a

man. His reason becomes subrogated to his passions which seem like ferocious beasts, in ambuscade, ready to leap upon and destroy it.

I have only mentioned incidentally the term insanity thus far, though I have said enough to exhibit this general definition of it; that from its mildest to its grossest forms, it is a loss of voluntary power, of freedom of the will, and I again assert that the brain and its functions are under the care of the medical profession. We are able to declare that men in the management of great trusts who engage in speculation in commercial material, or those in exalted positions in the state who exhibit a vaulting ambition, become dangerous to those trusts and to society, more especially if they practice excessive indulgence in mere animal appetites or live what is called a fast life.

The stupendous ventures made in stocks and produce in the great centers of commerce are often manifestations of insanity, superinduced by the methods I have indicated. Every faculty of the mind, intellectual and emotional, is urged without restraint to the utmost limit; the operator ceases to be reasonable; he becomes impulsive, therefore uncertain and dangerous to his environment. It is impossible to truly estimate the sinister influence which a rare stroke of fortune in speculative trading will work on the mental and moral constitution of the operator. The coolest men begin usually with reasonable circumspection, but, while winning, a species of intoxication gradually creeps upon them; they sleep less soundly and, quite commonly, drink intemperately and acquire a notion

of their extraordinary judgment on ventures; they think that they have discovered the law of success. At length the tide turns, they begin to lose. Then they make bolder strokes for recovery, and failing, chagrin depresses them, and excitement gives them no rest, wear and tear is rapid, the brain loses tone, self-restraint disappears, madness seizes them, and they hurl everything within their grasp, not excepting the property of others, trust funds, bank capital—all are thrown into the wild vortex of hazard and swallowed up in ruin. These things are constantly occurring. Is it depravity or insanity?

In fever, *mania a potu*, moral shocks and narcotic appetite we see, every day, reason dethroned; and, alas, under powerful excitement the vilest passions often surmount and reign over the grandest minds. The inordinate indulgence of our affective nature enervates the brain, and the disturbance of nervous force impairs the tone of the circulation in the penetralia of the organ; its pressure, rapidity and volume are disturbed, the metabolism is changed and its functional volitional capacity becomes abnormal.

We warn men, but they will not heed us. They mock at our solicitude and boast of their capacious, unlimited powers; but, sooner or later, the wear and tear shows itself; the ship steers wildly because the pilot is losing his keen eye and his firm grasp of the helm. We turn to the institutions of learning and say to the teachers, "Your overstimulation and exaction, by a multitude of tasks, will impair the usefulness of your pupils; your prize scholars shall not

shine in the contests of life so well as many of their duller fellows." We warn the people against luxuriance, indolence and a constant use of stimulants, and excess of any passion or appetite; for, while many organs of mere animal function suffer, the great brain itself becomes undermined. It is appalling to contemplate the social destruction about us on account of the passions of avarice, speculation and lust which have so greatly defiled public virtue.

I turn now to a brief consideration of the insane manifestations that we so commonly encounter in our medical practice. I refer to such affections as melancholia, monomania, hypochondria, neurasthenia, hysteria, alcoholism, morphinism and hypnotism. All of these may be ranged under the insane category. They originate mostly in hereditary types of constitution, in errors of education, want of parental training and abuse of the organism by excesses of any kind. It is unnecessary on this occasion to display the clinical phenomena in these diseases, and their differentiation; they are so well known. The reciprocal relations, in a pathological point of view, of mind and body are very marked. The physical conditions are often of a serious character, and the functions of organic life become gravely involved. In the treatment of these diseases the highest capacity of a physician is required. It is not only the sufferer who appeals to our experience; but the family upon whom these calamities have fallen.

What can we do for hard drinkers and drunkards—those dreadful creatures, often full of violence, and whose homes are made terrible? They are diseased

constitutionally, and have become mentally incompetent. They generally freely acknowledge their vices and will promise, and even take the most solemn oath, to cease their potations; but they find that their will power is too weak to resist the diabolical thirst; the cry of the nerves for the missing stimulant is often expressed by cruel neuralgias that overwhelm their purpose of reform. What can save them? We reply, isolation and systematic employment for a period sufficiently long to allow organic and voluntary life to reassert itself. Let it be written over the portals of the place of detention: sobriety, liberty: inebriety, isolation, labor. One to two years should be required for their detention, and when dismissed, it should be on a ticket-of-leave only.

Precisely this method should be employed for the treatment of morphinism or any other narcotic habit; and it should clearly be inculcated that though they seem to be cured of the appetite, abuses have left such a vicious constitution that the smallest amount of any of these toxics taken, will arouse the old appetites and bring them under bondage again. Total abstinence is their only safety.

Modifications of this method will apply in the treatment of melancholia, monomania, hysteria, neurasthenia and hypnotism. While such patients should not be required to employ themselves in any exhausting physical labor; yet, with as little delay as possible, they should do something that will develop voluntary activity. As Dr. Weir Mitchell has shown us, complete isolation in special hospitals, under trained nurses, is indispensable; they must be cut

off absolutely from seeing every one but the physician and his nurses. No correspondence should be allowed, or flowers or tokens of affection from parents or friends. The nurses must not be sympathetic nor overattentive, nor comply with all appeals for service. The subject must be taught self-help as far as possible, and be discouraged from complaining of aches and pains; nor dwell upon past sufferings. It will not hurt the patient to become indignant, or to weep; indeed, the nurse should assure her that these outbursts are indications that her disease is abating; but the nurse should never show resentment by word or deed, but simply reply that she is carrying out the doctor's instructions in all that she is doing. These poor sufferers at first are continually wanting something done for them—a bag of hot water, or a mustard paper, or a poultice, or to smell camphor, or bathing of the face or hands with cologne. All these requests must be refused. After a time the worst cases of them will begin to grow calm and obedient, their impulsive actions will diminish, and self-control at length emerge. Then a course of treatment should be entered upon that will increase the power of voluntary activity. Massage and electricity should have been employed from the first; but there is a danger in an excessive use of both of these agencies; for if too constantly used, a habit will become established that will impair self-control. Sewing, knitting, embroidery, drawing or painting, should make up a portion of each day's duties. I have often directed a review of certain portions of the arithmetic, or geometry, and in some cases the

writing of English into French or German, following the vocabularies and models in Ollendorf's grammars. All of these exercises require a positive exertion of the will, and they grow into self-possession in this way very satisfactorily. For forty years I have practiced a method of developing self-control by simply exacting a solemn promise from such patients, that they would not speak of their ailments to any one but myself. Indeed, with office clients who are suffering with milder hysteria, hypochondria and neurasthenia, it works well. I have had a large observation in this line of practice, and will say that I think that the ingenuity exercised in their successful management is greater than in most other affections. The so-called Christian science or faith cure people, get their success in this way. My limits forbid my further enlargement of this subject.

What I have desired to show is the differentiation of will and impulse—that the essential element in the perversion of intellection and emotion in all insane diseases is the abeyance of the will; that we should not say of these patients, that they have an obstinate will, but rather that their ideas are unregulated and unrestrained, and cannot be otherwise without a restoration to health of the area of the brain where consciousness exists; that to search successfully through all the hidden paths of the misty labyrinth of mental alienation, we must take as a guiding thread, that functional ill-health superinduces a lowering of consciousness and an invalidation of voluntary power. By all approved remedies

we must seek to improve the general health of the body and a rational volition.

In a brief conversation I had with Prof. Charcot last summer (he was my clinical teacher many years ago), I ventured to say that I thought in the studies of the startling phenomena of hysteria and hypnotism, sufficient account of the aberration of the will had not been set forth. He replied that there were in these cases manifestations of strong will. But, I continued, the researches under your direction by Gilles de la Tourette and Cathlineau had shown that these cases were in bad health; therefore these mental phenomena were merely impulsive; that the influences of suggestion in hypnotic cases were the guiding sensations.

In a final remark let me say that this subject is largely related to cases in medical jurisprudence which involve a differentiation of insanity and depravity; also in various questions of moral irregularities, and the difference between automatic and purposive action. This whole question is too large to compress satisfactorily into a paper of thirty minutes length.

Discussion.

Dr. C. H. Hughes, St. Louis, Mo.:—I would qualify the statement of the paper that hypnotism is an absence, perversion or impairment of the will to the extent, viz.: that it is a perversion of the will dependent upon a hypnotic or sleepy state. Some of you may know that I offered a substitute term some years ago for hypnotism, which was somnavolism. This term I consider more expressive of the hypnotized state than hypnotism. Hypnotism signifies scientifically nothing except a condition of sleep, which it is not exclusively. Hypnotism is a scientific misnomer

because he who is in a sleepy condition is simply in generally a drowsy condition; whereas something in the individual becomes passive in the hypnotic state. The individual becomes abeyant to the suggestions of another. Abeyance to suggestion is the phenomenon of hypnotism. It is somnavolism. It is the normal will of the individual made obedient to another through the sleeping process. It is a partial absence of the individual's normal will through the sleep process (*somnus a volo*). It is not a psychical process induced by the influence of the operator as was taught by Mesmer and his followers, and whose term *mesmerism* was equally as good as the substitute term of *hypnotism*, both signifying a similar mental condition. I called attention to the term proposed for this condition some years ago, in the *Alienist and Neurologist*.

Dr. Comegys has given us an excellent dissertation on mental hygiene for the public. Such a paper ought to appear in the higher class magazines that the people may know the true relationship between the psychical and the physical in their mental processes. I presume every one in this Association is in accord with the sentiments of the paper, and no one is better qualified than Dr. Comegys to discuss the subject.

Dr. C. G. Comegys, Cincinnati, Ohio:—I am glad to hear such kind expressions from my friend, Dr. Hughes, on this very important subject. I do not think we can over-estimate its importance. I have a feeling, which I believe is true, that this profession of ours is the greatest in this or any other Nation. Instead of playing a subsidiary part, we have more right than most men to stand by and dictate in regard to matters pertaining to the welfare of the public, and we should exercise all the influence we can to get recognition in the State for our profession.

In looking over the proceedings of the International Congress of Hygiene and Demography, which met in London last year, and noticing the welcome extended there to the French, German, Italian and Austrian scientists, I regretted to note that there were only two or three men to repre-

sent this great Republic of sixty-four millions of people. There was a distinguished gentleman from Minnesota and Dr. Vaughan, an eminent man, from the University of Michigan, but they did not officially represent our country; they were not asked to say anything.

Sir Joseph Fayrer, President of the Congress, and one of the most distinguished men in Great Britain, declared that though they had accomplished much work in England through the Local Board, a sort of national medical board in London, where Simon, Burdon-Sanderson and Klein have labored successfully, there is no telling what could have been accomplished if they had had a medical minister of the State.

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